Hardware Reference Manual

NX-Series

NetLinx Integrated Controllers

NX-1200, NX-2200
NX-3200, NX-4200

Central Controllers

Latest Release: 8/8/2014

AMX DOMESTIC CHANNEL PARTNER and END CUSTOMER LIMITED WARRANTY, DISCLAIMER AND LICENSE

(Excerpt from CHANNEL PARTNER TERMS AND CONDITIONS Versions 11.17.2011 with updates for previous version 8.25.2010 [sections 6.1 (a), (b) and (f)])

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DLI-6293353v1

Note: *Refer to www.amx.com to view/download the latest complete AMX Warranty and Return Policies.*

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Warning: *The icon to the left indicates text that warns readers against actions or conditions that could cause potential injury to themselves.*

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When working with any equipment manufactured with electronic devices, proper ESD grounding procedures must be followed to make sure people, products, and tools are as free of static charges as possible. Grounding straps, conductive smocks, and conductive work mats are specifically designed for this purpose.

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The United States Federal Communications Commission has specified that the following notice be brought to the attention of the users of this product.

Federal Communication Commission Radio Frequency Interference Statement:

> *"This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.*
>
> *If necessary, the user should consult the dealer or an experienced radio/television technician for additional suggestions. The user may find the booklet, How to Identify and Resolve Radio-TV Interference Problems, prepared by the Federal Communications Commission to be helpful."*

This booklet is available from the U.S. Government Printing Office, Washington, D.C. 20402, Stock N. 004-000-00345-4.

Use shielded cables. To comply with FCC Class A requirement, all external data interface cables and adapters must be shielded.

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Federal Communication Commission Radio Frequency Interference Statement:

This equipment complies with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications.

Shielded cables must be used with this equipment to maintain compliance with FCC regulations.

Any changes or modifications to this product not explicitly approved by the manufacturer could void the user's authority to operate the equipment and any assurances of Safety or Performance, and could result in violation of Part 15 of the FCC Rules.

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) this device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

This Class B digital apparatus complies with Canadian ICES-003.

FCC Radiation Exposure Statement for Wireless Models

This equipment complies with FCC radiation exposure limits set forth for an uncontrolled environment. The antenna(s) used for this equipment must be installed to provide a separation distance of at least eight inches (20 cm) from all persons. This equipment must not be operated in conjunction with any other antenna.

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Overview

The NX-series of NetLinx Integrated Master Controllers can be programmed to control Ethernet, RS-232/422/485, Relay, IR, and Input/Output devices, as well as other AMX devices connected via AxLink, through the use of both NetLinx and Java programming languages. NetLinx programs are developed using the NetLinx Studio application version 4.x. Java programs are developed using the Cafe Duet application. The NX-series controllers can also be programmed using Rapid Project Maker (RPM), a cloud-based configuration tool. This manual provides the specifications, connection information, wiring diagrams, and hardware configuration options for the NX-1200 (**FG2106-01**), NX-2200 (**FG2106-02**), NX-3200 (**FG2106-03**), and NX-4200 (**FG2106-04**).

Note: *References within this manual to NX X200-Series Controllers are used to describe the NX-1200/2200/3200/4200 Integrated Controllers when the information applies to all NX-series controllers.*

FIG. 1 displays the NX-series controllers.

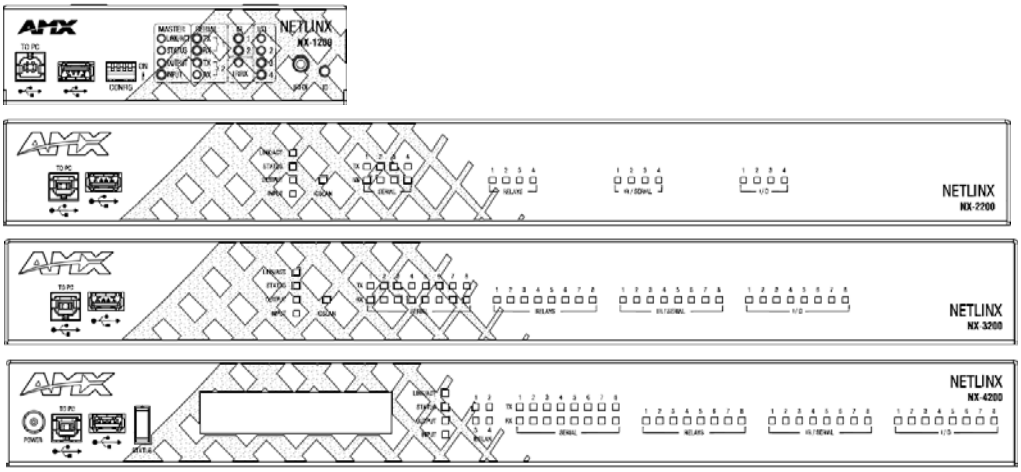


FIG. 1 NX-series controllers

Related Documents

For information on using the on-board Web Console, as well as NetLinx send commands and terminal communications to configure the NX-series Controllers, refer to the *NX Series NetLinx Integrated Controllers WebConsole & Programming Guide*.

Note: *All product documentation is available to view or download from www.amx.com.*

What's New?

The following section lists the new features for the NX-series controllers. For more information about each of these items, see the *What's New for NX-Series Controllers* document located on the NX controllers product pages at *www.amx.com*.

Two Discrete Network Interfaces (NICs)

The NX-2200, NX-3200 and NX-4200 controllers have two 10/100BaseT Ethernet connections. The first, designated as LAN, is intended for connection to the Data Network for external network communications such as database access or scheduling. The second, the ICSLAN is intended for communication with AV devices.

Using the ICSLAN Network

The ICSLAN port has a built-in DHCP server. This DHCP server is enabled by default and will serve IP addresses to any connected devices set to DHCP mode.

For more information about using the ICSLAN network, DHCP servers, and opening LAN and ICSLAN sockets from code, see the *ICSLAN Ports* section on page 30.

Automatic Binding of AMX Devices on ICSLAN

When an ICSLAN device is set to NDP connection mode (the factory default), it will automatically be bound to the master when connected to it's ICSLAN port if it's IP address is valid for the ICSLAN subnet.

Support for IPv6 Networks

The NX-Series controllers fully support IPv6 network addressing. If the LAN port is connected to an IPv6 capable network it will self select an appropriate IPv6 address based on the discovered address parameters of the network to which it's attached.

The controllers simultaneously support IPv4 network addressing. This means any controller may have more than one valid IP address: one IPv4 and one or more IPv6 addresses.

Link-Local Fallback in DHCP Mode

When the X-Series controller's LAN IP addressing mode is set to DHCP, it will attempt to acquire an IPv4 address from a DHCP server for approximately one minute after boot. If the controller does not receive a valid DHCP address in that time (e.g. if a DHCP server is not found), it will fall back to an IPv4 address in the link-local range.

Wired 802.1X Support

The X-Series controllers support 802.1X, an IEEE Standard for Port-based Network Access Control.

ID Pushbutton Functionality

The X-Series controllers include new ID pushbutton functionality. For more information, see the *ID Pushbutton* section on page 31.

Serial Ports Differences

Unlike current NI controllers, not all serial ports on the X-series controllers support RS-422 and RS-485. The NX-1200 and NX-2200 have one serial port that supports RS-232/422/485, and the NX-3200 and NX-4200 have two. The rest of the serial ports (1 on the NX-1200, 3 on the NX-2200 and 6 on the NX-3200 and NX-4200) support only the RS-232 protocol.

Serial, IR, and AxLink Port Diagnostics

When a string is sent to a serial port or an IR pulse to an IR port, the X-Series controllers can detect and report if the port being used is in a fault condition. The controllers can also detect certain fault conditions on the AxLink bus.

AxLink Power Measurement and Control

Important: *The NX-Series controllers can NOT be powered via the AxLink port. The +12V pin on the AxLink connectors are designed only for voltage output. Do NOT connect +12V from a power supply or the NXA-PDU to the +12V pin on the AxLink connectors, or you may permanently damage the NX controller and/or the power supply.*

The AxLink ports on X-Series controller support a new NetLinx command to turn on and off +12V power output on the port.

Case Sensitive File System

Unlike the NI-Series controllers, all file names on the X-Series controllers are case sensitive. This includes all user files created or used within NetLinx or Java code.

USB Program Port

The X-Series controllers utilize a true USB port for configuration and programming via a connected PC.

USB Firmware Upgrade

All X-Series controllers support firmware upgrades via a USB solid-state drive. Selecting the desired .kit file and initiating the upgrade are done from telnet.

USB Program Download

All X-Series controllers support loading NetLinx program files via a USB solid-state drive. Selecting the desired .tkn file and initiating the upload are done from telnet.

USB Logging

If a USB storage device is connected via an X-Series controller's USB port it can be used to store a log of system status messages.

Copy and Clone Configuration

On any X-Series controller, configuration information can be exported to and imported from a USB storage device. There are two different levels of configuration export: "COPY" and "CLONE". See the *NX Series NetLinx Integrated Controllers WebConsole & Programming Guide* for information on using the EXPORT CONFIG and EXPORT CLONE telnet commands.

Difference in DEFINE_PROGRAM Program Execution

Due to differences in the underlying architecture of the X-Series masters, changing variables in the DEFINE_PROGRAM section of code can negatively impact program performance.

External SD Card Slot (NX-3200 and NX-4200 only)

The external SD card slot in the NX-3200 and NX-4200 is for future use. Until firmware is available that supports the use of an external SD card, it is recommended that the card slot be left empty.

Redundant Power Source (NX-4200 only)

The NX-4200 can be powered either with a connection to the main AC power (110/220VAC) or from an external 12V DC power supply.

Power Button (NX-4200 only)

The NX-4200 includes a momentary button on the front panel that can be used to turn on and off the unit.

Front Panel LCD Status Display (NX-4200 only)

The NX-4200 includes a 2-line by 20-character display on the front panel to display status information. The toggle switch next the display scrolls through a fixed list of information about the unit and its current configuration.

4-Port PoE ICSLAN Switch (NX-4200 only)

The NX-4200 includes four ICSLAN connection ports via a built-in 4-port switch. When powered by an AC source, the NX-4200 can supply power via PoE to each port on the 4-port switch.

Features

The following table summarizes the features for each NX-series controller:

NX-Series Controllers - Features	
NX-1200 NetLinx Integrated Controllers	
Name / FG#	Features
NX-1200 Controller (FG2106-01)	1 RS-232 / RS-422 / RS-485 serial port 1 RS-232-only serial port 2 IR / Serial ports 4 Digital I/O ports 1 AxLink port 1 LAN Ethernet port 1 IR Receiver port capable of interfacing with an AMX IR03 1 USB 2.0 host port 1600 MIPS 512 MB RAM 4 GB Internal MicroSD Memory Card 1 MB Non-volatile Memory AMX Device Discovery enabled
NX-2200 NetLinx Integrated Controllers	
Name / FG#	Features
NX-2200 Controller (FG2106-02)	1 RS-232 / RS-422 / RS-485 serial port 3 RS-232-only serial ports 4 Relays 4 IR / Serial ports 4 Digital I/O ports 1 AxLink port 1 ICSNet Ethernet port 1 LAN Ethernet port 2 USB 2.0 host ports 1600 MIPS 512 MB RAM 8 GB Internal MicroSD Memory Card 1 MB Non-Volatile Memory AMX Device Discovery enabled
NX-3200 NetLinx Integrated Controllers	
Name / FG#	Features
NX-3200 Controller (FG2106-03)	2 RS-232 / RS-422 / RS-485 serial ports 6 RS-232-only serial ports 8 Relays 8 IR/Serial ports 8 Digital I/O ports 2 AxLink ports 1 ICSNet Ethernet port 1 LAN Ethernet port 2 USB 2.0 host ports 1600 MIPS 512 MB RAM 8 GB Internal MicroSD Memory Card 1 MB Non-Volatile Memory AMX Device Discovery enabled

NX-Series Controllers - Features (Cont.)	
NX-4200 NetLinx Integrated Controllers	
Name / FG#	Features
NX-4200 Controller (FG2106-04)	2 RS-232 / RS-422 / RS-485 serial ports 6 RS-232-only serial port 8 Relays 8 IR / Serial ports 8 Digital I/O ports 2 AxLink ports 4 ICSNet Ethernet ports 1 LAN Ethernet port 2 USB 2.0 host ports 1600 MIPS 1 GB RAM 8 GB Internal MicroSD Memory Card 1 MB Non-Volatile Memory AMX Device Discovery enabled

NX-1200

The NX-1200 (**FG2106-01**) has 512MB of on-board RAM, a 4GB CompactFlash card, and is Device Discovery enabled to simplify programming by standardizing device and function definitions, default touch panel button assignments, and control and feedback methods. A complete list of device specifications is listed below.

FIG. 2 displays the NX-1200.

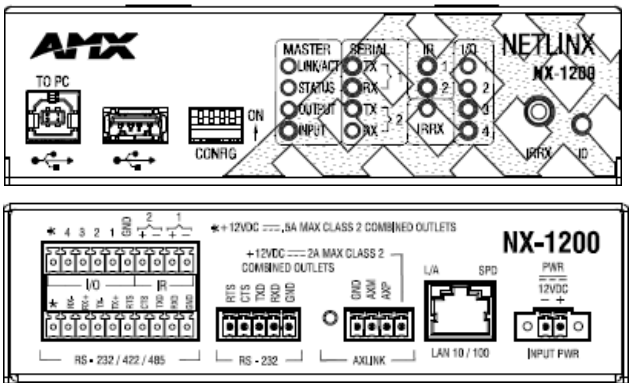


FIG. 2 NX-1200 (front and rear panels)

Note: *Verify you are using the latest NX firmware for the on-board Master. Verify you are using the latest version of NetLinx Studio 4.0 (available for download from www.amx.com).*

Port Numbers

The following table lists the port numbers on the NX-1200:

NX-1200 Port Numbers				
RS-232	RS-422/485	IR/Serial	I/O	IR/RX
2	1	11-12	22	20

NX-1200 Specifications

NX-1200 Specifications	
Dimensions (HWD):	1.645" x 5.8" x 5.15" (41.78mm x 147.32mm x 130.81mm) RU: 1/3
Active Power Requirements:	• DC input voltage (typical): 12 V_{DC} • DC current draw: 200 mA @ 12 V_{DC} • DC range, voltage: 9-18 V_{DC}
Active Power Consumption:	3W
Memory:	• 512 MB DDRAM • 1 MB Non-volatile RAM (NVRAM) • 4 GB Internal MicroSD memory card
Weight:	1.6 lbs (0.7257 kg)
Enclosure:	Metal with black matte finish
Certifications:	• FCC CFR Title 47 Part 15 • CE EN 55022 • CE EN 55024 • CE EN 60950-1 • IEC 60950-1 • UL 60950-1 • C-Tick CISPR 22 • IC CISPR 22 • VCCI CISPR 22 • RoHS / WEEE compliant
Front Panel Components:	
Program Port:	1 Type-B USB port that can connect to a USB port on a PC and access the NetLinx Studio program for controller configuration.
USB Port:	1 Type-A USB port for connecting a mass storage device for loading .tkn files, reading or writing configuration files and log files, or updating the firmware on the unit.
Configuration DIP Switch:	The Configuration DIP Switch allows you to set boot-time operations (see the *Configuration DIP Switch* section on page 30 for more information.)
Master LEDs:	• LINK/ACT (green): Blinks when the Ethernet cables are connected and terminated correctly. Also blinks when receiving Ethernet data packets. • STATUS (green): Blinks to indicate that the system is programmed and communicating properly. • OUTPUT (red): Blinks when the Controller transmits data, sets channels On and Off, sends data strings, etc. • INPUT (yellow): Blinks when the Controller receives data from button pushes, strings, commands, channel levels, etc.
Serial LED (red / yellow):	2 sets of LEDs light to indicate that RS-232 ports 1-2 are transmitting or receiving RS-232, 422, or 485 data (red = TX, yellow = RX).
IR LED (red):	2 LEDs light to indicate the IR/Serial ports 11-12 are transmitting control data. LED indicator for each IR port remains lit for the length of time that IR/Serial data is being generated.
IRRX LED (red):	1 LED light to indicate the IRRX channel is receiving control data via the IRRX port. The LED indicator remains lit for the length of time that IR data is being received.
Digital I/O LED (yellow):	Lights when I/O channels 1-4 are active. The LED for each I/O port reflects the state of that particular port.
IRRX Port:	1 1/8" mini-phono connector for interfacing with an IR03 IR receiver.
ID Pushbutton:	1 black ID pushbutton used during boot to revert to factory configuration or factory firmware. Also used after boot to toggle IP mode between Static and DHCP.

NX-1200 Specifications (Cont.)	
Rear Panel Components:	
Digital I/O (Port 22):	1 6-pin 4-channel binary I/O port for contact closure with each input being capable of voltage sensing. Input format is software selectable with interactive power sensing for IR ports.
IR/Serial (Ports 11-12):	2 2-pin IR/Serial control ports support high-frequency carriers of up to 1.142 MHz with each output being capable of two electrical formats: IR or Serial. 2 IR/Serial data signals can be generated simultaneously. IR ports support data mode (at limited baud rates and wiring distances).
RS-232/422/485 (Port 1):	1 10-pin RS-232/422/485 control ports using 3.5 mm mini-Phoenix (male) connectors with XON/XOFF (transmit on/transmit off), CTS/RTS (clear to send/ready to send). Supports 300-115,200 baud.
RS-232 (Port 2):	1 5-pin RS-232 control port using 3.5 mm mini-Phoenix (male) connectors with XON/XOFF (transmit on/transmit off), CTS/RTS (clear to send/ready to send). Supports 300-115,200 baud.
AxLink Port:	1 4-pin 3.5 mm mini-Phoenix (male) connector that provides data and power to external AxLink control devices. Green AxLink LED indicates the state of the AxLink port.
LAN 10/100 Port:	1 RJ-45 connector provides Ethernet communication. This is an Auto MDI/MDI-X enabled port, which allows you to use either straight-through or crossover Ethernet cables. The LAN Port LEDs show communication activity, connection status, speeds, and mode information: • SPD (speed) - Yellow LED lights On when the connection speed is 100 Mbps and turns Off when the speed is 10 Mbps. • L/A (link/activity) - Green LED lights On when the Ethernet cables are connected and terminated correctly, and blinks when receiving Ethernet data packets.
Power Connection:	2-pin 3.5 mm mini-Phoenix (male) connector with retention screws provides power to the NX-1200.
General Specifications:	
Operating Environment:	• Operating Temperature: 32° F (0° C) to 122° F (50° C) • Storage Temperature: 14° F (-10° C) to 140° F (60° C) • Operating Humidity: 5% to 85% RH • Heat Dissipation (On): 10.2 BTU/hr
Included Accessories:	• 1 2-pin 3.5 mm mini-Phoenix (female) PWR connector • 1 4-pin 3.5 mm mini-Phoenix (female) AxLink connector • 1 6-pin 3.5 mm mini-Phoenix (female) I/O connector • 1 10-pin 3.5mm mini-Phoenix (female) RS232/422/485 connector • 1 5-pin 3.5mm mini-Phoenix (female) RS232 connector • 1 CC-NIRC, IR Emitters (**FG10-000-11**)
Other AMX Equipment:	• PSN6.5 - 6.5 A Power Supply (**FG423-41**) • PSR4.4 - 4.4 A Power Supply (**FG423-46**) • CC-USB-NI - USB Programming Cable (**FG10-2105**) • CC-NIRC - IR Cables (**FG10-000-11**) • CBL-ETH-FL, Ethernet Cat5e Flat Cable (**FG1-2182-16**) • EXB-IRS4, ICSLan IR/S Interface, 4 IR/S and 4 Inputs (**FG2100-23**) • EXB-COM2, ICSLan Serial Interface, 2 Ports (**FG2100-22**) • EXB-REL8, ICSLan Relay Interface, 8 Channels (**FG2100-20**) • EXB-I/O8, ICSLan Input/Output Interface, 8 Channels (**FG2100-21**) • EXB-MP1, ICSLan Multi-Port, 1 COM, 1 IR/S, 2 I/O, 1 IR RX (**FG2100-26**)

NX-2200

The NX-2200 (**FG2106-02**) has 512MB of on-board RAM, a 4GB CompactFlash card, and is Device Discovery enabled to simplify programming by standardizing device and function definitions, default touch panel button assignments, and control and feedback methods. A complete list of device specifications is listed below.

FIG. 3 displays the NX-2200.

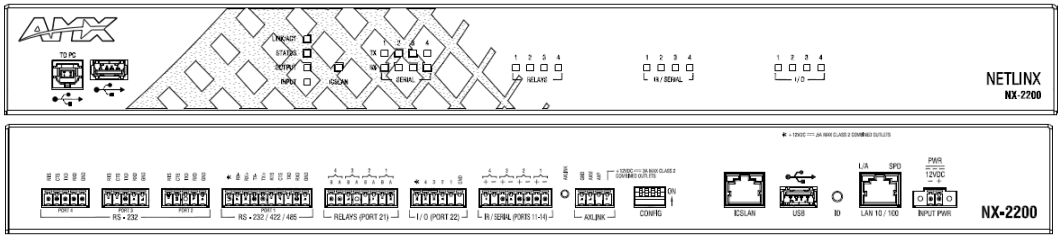


FIG. 3 NX-2200 (front and rear panels)

Note: *Verify you are using the latest NX firmware for the on-board Master. Verify you are using the latest version of NetLinx Studio 4.0 (available for download from www.amx.com).*

Port Numbers

The following table lists the port numbers for the NX-2200:

NX-2200 Port Numbers				
RS-232	RS-422/485	IR/Serial	I/O	Relay
2-4	1	11-14	22	21

NX-2200 Specifications

NX-2200 Specifications	
Dimensions (HWD):	1.766" x 17" x 9.12" (44.85mm x 431.8mm x 231.64mm) RU: 1
Active Power Requirements:	• DC input voltage (typical): 12 V_{DC} • DC current draw: 250 mA @ 12 V_{DC} • DC range, voltage: 9-18 V_{DC}
Active Power Consumption:	4.2W
Memory:	• 512 MB RAM • 1 MB Non-volatile RAM (NVRAM) • 8 GB Internal MicroSD memory card
Weight:	6.08 lbs (2.7578 kg)
Enclosure:	Metal with black matte finish
Certifications:	• FCC CFR Title 47 Part 15 • CE EN 55022 • CE EN 55024 • CE EN 60950-1 • IEC 60950-1 • UL 60950-1 • C-Tick CISPR 22 • IC CISPR 22 • VCCI CISPR 22 • RoHS / WEEE compliant
Front Panel Components:	
Program Port:	1 Type-B USB port that can connect to a USB port on a PC and access the NetLinx Studio program for controller configuration.

NX-2200 Specifications (Cont.)	
USB Port:	1 Type-A USB port for connecting a mass storage device for loading .tkn files, reading or writing configuration files and log files, or updating the firmware on the unit.
Master LEDs:	• LINK/ACT (green): Blinks when the Ethernet cables are connected and terminated correctly. Also blinks when receiving Ethernet data packets. • STATUS (green): Blinks to indicate that the system is programmed and communicating properly. • OUTPUT (red): Blinks when the Controller transmits data, sets channels On and Off, sends data strings, etc. • INPUT (yellow): Blinks when the Controller receives data from button pushes, strings, commands, channel levels, etc.
ICSLAN LEDs (red):	1 LED which blinks when the RJ-45 cables to port 1 is connected and terminated correctly. The LED also blinks when receiving LAN data packets.
Serial LEDs (red):	2 sets of four LEDs, each of which light to indicate that the corresponding RS-232 ports (2-4) and RS-232/422/485 port (1) are transmitting or receiving RS-232, 422, or 485 data.
Relay (red):	4 LEDs light to indicate the relay channels 1-4 are active (closed). These LEDs reflect the state of the relay on port 21.
IR/Serial (red):	4 LEDs light to indicate the IR/Serial ports 11-14 are transmitting control data. LED indicator for each IR port remains lit for the length of time that IR/Serial data is being generated.
Digital I/O (yellow):	Lights when the I/O channels 1-4 are active. The LED for each I/O port reflects the state of that particular port.
Rear Panel Components:	
RS-232/422/485 (Port 1):	1 10-pin RS-232/422/485 control ports using a 10-pin 3.5 mm mini-Phoenix (male) connector with XON/XOFF (transmit on/transmit off), CTS/RTS (clear to send/ready to send). Supports 300-115,200 baud.
RS-232 (Ports 2-4):	3 5-pin RS-232 control ports using 5-pin 3.5 mm mini-Phoenix (male) connectors with XON/XOFF (transmit on/transmit off), CTS/RTS (clear to send/ready to send). Supports 300-115,200 baud.
Relay (Port 21):	4 2-pin 4-channel single-pole single-throw relay ports. Each relay is independently controlled. Supports up to 4 independent external relay devices Channel range = 1-4 Each relay can switch up to 24 V_{DC} or 28 V_{AC} @ 1 A 8-pin 3.5 mm mini-Phoenix (male) connector provides connection to relays
Digital I/O (Port 22):	4-channel binary I/O port for contact closure with each input being capable of voltage sensing. Input format is software selectable with interactive power sensing for IR ports.
IR/Serial (Ports 11-14):	4 IR/Serial control ports support high-frequency carriers of up to 1.142 MHz with each output being capable of two electrical formats: IR or Serial. 4 IR/Serial data signals can be generated simultaneously. IR ports support data mode (at limited baud rates and wiring distances).
AxLink Port:	4-pin 3.5 mm mini-Phoenix (male) connector that provides data and power to external AxLink control devices. Green AxLink LED indicates the state of the AxLink port.
Configuration DIP Switch:	The Configuration DIP Switch allows you to set boot-time operations (see *Configuration DIP Switch* section on page 30 for more information.)
ICSLAN:	1 RJ-45 connector for ICSLAN interface.
USB Port:	1 Type-A USB port for connecting a mass storage device for loading .tkn files, reading or writing configuration files and log files, or updating the firmware on the unit.
ID Pushbutton:	1 black ID pushbutton used during boot to revert to factory configuration or factory firmware. Also used after boot to toggle IP mode between Static and DHCP.

NX-2200 Specifications (Cont.)	
LAN 10/100 Port:	1 RJ-45 connector provides TCP/IP communication. This is an Auto MDI/MDI-X enabled port, which allows you to use either straight-through or crossover Ethernet cables. The Ethernet Port LEDs show communication activity, connection status, speeds, and mode information: • SPD (speed) - Yellow LED lights On when the connection speed is 100 Mbps and turns Off when the speed is 10 Mbps. • L/A (link/activity) - Green LED lights On when the Ethernet cables are connected and terminated correctly, and blinks when receiving Ethernet data packets.
Power Connection:	2-pin 3.5 mm mini-Phoenix (male) connector with retention screws provides power to the NX-2200.
General Specifications:	
Operating Environment:	• Operating Temperature: 32° F (0° C) to 122° F (50° C) • Storage Temperature: 14° F (-10° C) to 140° F (60° C) • Operating Humidity: 5% to 85% RH • Heat Dissipation (On): 14.3 BTU/hr
Included Accessories:	• 1 2-pin 3.5 mm mini-Phoenix (female) PWR connector • 1 4-pin 3.5 mm mini-Phoenix (female) AxLink connector • 1 6-pin 3.5 mm mini-Phoenix (female) I/O connector • 1 10-pin 3.5mm mini-Phoenix (female) RS232/422/485 connector • 3 5-pin 3.5mm mini-Phoenix (female) RS232 connectors • 2 CC-NIRC, IR Emitters (**FG10-000-11**) • 2 removable rack ears
Other AMX Equipment:	• PSN6.5 - 6.5 A Power Supply (**FG423-41**) • PSR4.4 - 4.4 A Power Supply (**FG423-46**) • CC-USB-NI - USB Programming Cable (**FG10-2105**) • CC-NIRC - IR Cables (**FG10-000-11**) • CBL-ETH-FL, Ethernet Cat5e Flat Cable (**FG1-2182-16**) • EXB-IRS4, ICSLan IR/S Interface, 4 IR/S and 4 Inputs (**FG2100-23**) • EXB-COM2, ICSLan Serial Interface, 2 Ports (**FG2100-22**) • EXB-REL8, ICSLan Relay Interface, 8 Channels (**FG2100-20**) • EXB-I/O8, ICSLan Input/Output Interface, 8 Channels (**FG2100-21**) • EXB-MP1, ICSLan Multi-Port, 1 COM, 1 IR/S, 2 I/O, 1 IR RX (**FG2100-26**)

NX-3200

The NX-3200 (**FG2106-03**) has 512MB of on-board RAM, a 4GB CompactFlash card, and is Device Discovery enabled to simplify programming by standardizing device and function definitions, default touch panel button assignments, and control and feedback methods. A complete list of device specifications is listed below.

FIG. 4 displays the NX-3200.

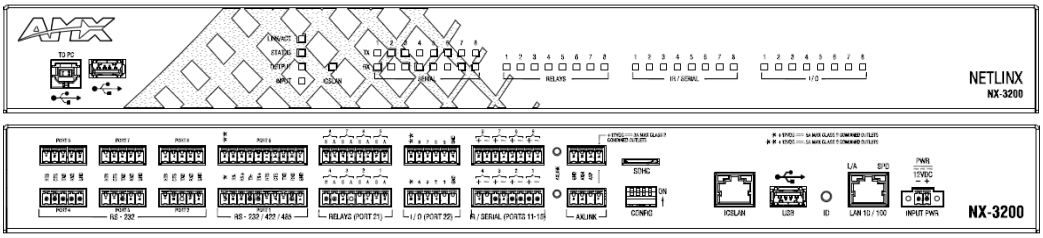


FIG. 4 NX-3200 (front and rear panels)

Note: *Verify you are using the latest NX firmware for the on-board Master. Verify you are using the latest version of NetLinx Studio 4.0 (available for download from www.amx.com).*

Port Numbers

The following table lists the port numbers for the NX-3200:

NX-3200 Port Numbers				
RS-232	RS-422/485	IR/Serial	I/O	Relay
2-4, 6-8	1, 5	11-18	22	21

NX-3200 Specifications

NX-3200 Specifications	
Dimensions (HWD):	1.766" x 17" x 9.12" (44.85mm x 431.8mm x 231.64mm) RU: 1
Active Power Requirements:	• DC input voltage (typical): 12 V_{DC} • DC current draw: 400 mA @ 12 V_{DC} • DC range, voltage: 9-18 V_{DC}
Active Power Consumption:	6.6W
Memory:	• 512 MB RAM • 1 MB Non-volatile RAM (NVRAM) • 8 GB Internal MicroSD memory card
Weight:	6.1 lbs (2.7669 kg)
Enclosure:	Metal with black matte finish
Certifications:	• FCC CFR Title 47 Part 15 • CE EN 55022 • CE EN 55024 • CE EN 60950-1 • IEC 60950-1 • UL 60950-1 • C-Tick CISPR 22 • IC CISPR 22 • VCCI CISPR 22 • RoHS / WEEE compliant
Front Panel Components:	
Program Port:	1 Type-B USB port that can connect to a USB port on a PC and access the NetLinx Studio program for controller configuration.

NX-3200 Specifications (Cont.)	
USB Port:	1 Type-A USB port for connecting a mass storage device for loading .tkn files, reading or writing configuration files and log files, or updating the firmware on the unit.
Master LEDs:	• LINK/ACT (green): Blinks when the Ethernet cables are connected and terminated correctly. Also blinks when receiving Ethernet data packets. • STATUS (green): Blinks to indicate that the system is programmed and communicating properly. • OUTPUT (red): Blinks when the Controller transmits data, sets channels On and Off, sends data strings, etc. • INPUT (yellow): Blinks when the Controller receives data from button pushes, strings, commands, channel levels, etc.
ICSLAN LEDs (red):	1 LED which blinks when the RJ-45 cables to port 1 is connected and terminated correctly. The LED also blinks when receiving LAN data packets.
Serial LEDs (red):	2 sets of eight LEDs, each of which light to indicate that the corresponding RS-232 ports (2-4, 6-8) and RS-232/422/485 ports (1, 5) are transmitting or receiving RS-232, 422, or 485 data.
Relay LEDs (red):	1 set of 8 LEDs, each of which light to indicate the corresponding relay channels (1-8) are active (closed). These LEDs reflect the state of the relay on port 21.
IR/Serial LEDs (red):	1 set of 8 LEDs, each of which light to indicate the IR/Serial channels 1-8 are transmitting control data on the corresponding IR/Serial ports (ports 11-18). The LED indicator for each IR port remains lit for the length of time that IR/Serial data is being generated.
Digital I/O LEDs (yellow):	1 set of 8 LEDs, each of which light when the corresponding rear I/O channels (1-8) are active. The LED for each I/O port reflects the state of that particular port.
Rear Panel Components:	
RS-232 (Ports 2-4, 6-8):	6 5-pin RS-232 control ports using 5-pin 3.5 mm mini-Phoenix (male) connectors with XON/XOFF (transmit on/transmit off), CTS/RTS (clear to send/ready to send). Supports 300-115,200 baud.
RS-232/422/485 (Ports 1 and 5):	2 10-pin RS-232/422/485 control ports using a 10-pin 3.5 mm mini-Phoenix (male) connector with XON/XOFF (transmit on/transmit off), CTS/RTS (clear to send/ready to send). Supports 300-115,200 baud.
Relays (Port 21):	8-channel single-pole single-throw relay port Each relay is independently controlled. Supports up to 8 independent external relay devices Channel range = 1-8 Each relay can switch up to 24 V_{DC} or 28 V_{AC} @ 1 A Two 8-pin 3.5 mm mini-Phoenix (male) connectors provide connection to relays
Digital I/O (Port 22):	8-channel binary I/O port for contact closure with each input being capable of voltage sensing. Input format is software selectable with interactive power sensing for IR ports.
IR/Serial (Ports 11-18):	8 IR/Serial control ports support high-frequency carriers of up to 1.142 MHz with each output being capable of two electrical formats: IR or Serial. 8 IR/Serial data signals can be generated simultaneously. IR ports support data mode (at limited baud rates and wiring distances).
SDHC Slot:	1 SDHC card slot for future use.
Configuration DIP Switch:	The Configuration DIP Switch allows you to set boot-time operations (see the *Configuration DIP Switch* section on page 30 for more information.)
ICSLAN Ports:	1 RJ-45 connector for ICSLAN interface
USB Port:	1 Type-A USB port for connecting a mass storage device for loading .tkn files, reading or writing configuration files and log files, or updating the firmware on the unit.
ID Pushbutton:	1 black ID pushbutton used during boot to revert to factory configuration or factory firmware. Also used after boot to toggle IP mode between Static and DHCP.

NX-3200 Specifications (Cont.)	
LAN 10/100 Port:	RJ-45 connector provides TCP/IP communication. This is an Auto MDI/MDI-X enabled port, which allows you to use either straight-through or crossover Ethernet cables. The Ethernet Port LEDs show communication activity, connection status, speeds, and mode information: • SPD (speed) - Yellow LED lights On when the connection speed is 100 Mbps and turns Off when the speed is 10 Mbps. • L/A (link/activity) - Green LED lights On when the Ethernet cables are connected and terminated correctly, and blinks when receiving Ethernet data packets.
AxLink Port:	2 4-pin 3.5 mm mini-Phoenix (male) connectors that provides data and power to external AxLink control devices. Green AxLink LED indicates the state of the AxLink port.
Power Connection:	2-pin 3.5 mm mini-Phoenix (male) connector with retention screws provides power to the NX-3200.
General Specifications:	
Operating Environment:	• Operating Temperature: 32° F (0° C) to 122° F (50° C) • Storage Temperature: 14° F (-10° C) to 140° F (60° C) • Operating Humidity: 5% to 85% RH • Heat Dissipation (On): 22.5 BTU/hr
Included Accessories:	• 1 2-pin 3.5 mm mini-Phoenix (female) PWR connector • 1 4-pin 3.5 mm mini-Phoenix (female) AxLink connector • 2 6-pin 3.5 mm mini-Phoenix (female) I/O connectors • 2 8-pin 3.5 mm mini-Phoenix (female) Relay connectors • 2 10-pin 3.5mm mini-Phoenix (female) RS232/422/485 connectors • 6 5-pin 3.5mm mini-Phoenix (female) RS232 connectors • 2 CC-NIRC, IR Emitters (**FG10-000-11**) • 2 removable rack ears
Other AMX Equipment:	• PSN6.5 - 6.5 A Power Supply (**FG423-41**) • PSR4.4 - 4.4 A Power Supply (**FG423-46**) • CC-USB-NI - USB Programming Cable (**FG10-2105**) • CC-NIRC - IR Cables (**FG10-000-11**) • CBL-ETH-FL, Ethernet Cat5e Flat Cable (**FG1-2182-16**) • EXB-IRS4, ICSLan IR/S Interface, 4 IR/S and 4 Inputs (**FG2100-23**) • EXB-COM2, ICSLan Serial Interface, 2 Ports (**FG2100-22**) • EXB-REL8, ICSLan Relay Interface, 8 Channels (**FG2100-20**) • EXB-I/O8, ICSLan Input/Output Interface, 8 Channels (**FG2100-21**) • EXB-MP1, ICSLan Multi-Port, 1 COM, 1 IR/S, 2 I/O, 1 IR RX (**FG2100-26**)

NX-4200

The NX-4200 (**FG2106-04**) has 1GB of on-board RAM, a 13GB CompactFlash card, and is Device Discovery enabled to simplify programming by standardizing device and function definitions, default touch panel button assignments, and control and feedback methods. A complete list of device specifications is listed below.

FIG. 5 displays the NX-4200.

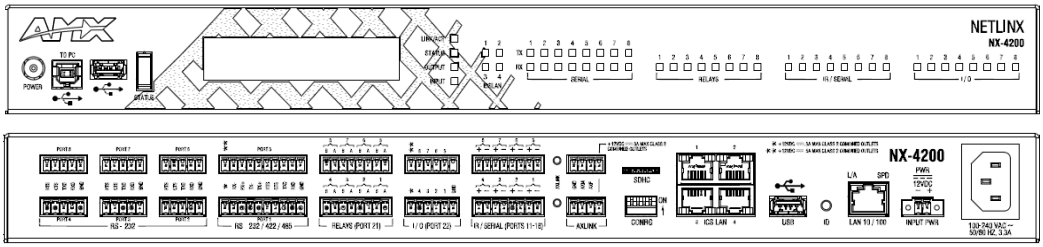


FIG. 5 NX-4200 (front and rear panels)

The NX-4200's on-board Master also provides the ability to update installed control card firmware.

Note: *Verify you are using the latest NX firmware for the on-board Master. Verify you are using the latest version of NetLinx Studio 4.0 (available for download from www.amx.com).*

Port Numbers

The following table lists the port numbers for the NX-4200:

NX-4200 Port Numbers					
RS-232	RS-422/485	IR/Serial	I/O	Relay	PoE
2-4, 6-8	1, 5	11-18	22	21	24-27

NX-4200 Specifications

NX-4200 Specifications	
Dimensions (HWD):	1.766" x 17" x 9.18" (44.85mm x 431.8mm x 233.17mm) RU: 1
Active Power Requirements:	• DC input voltage (typical): 12 V_{DC} • DC current draw: 200 mA @ 12 V_{DC} • DC range, voltage: 9-18 V_{DC} • AC voltage (typical): 100-240V_{AC} 50/60Hz
Active Power Consumption:	8.4W
Memory:	• 1 GB RAM • 1 MB Non-volatile RAM (NVRAM) • 8 GB Internal MicroSD memory card
Weight:	7.6 lbs (3.4473 kg)
Enclosure:	Metal with black matte finish
Certifications:	• FCC CFR Title 47 Part 15 • CE EN 55022 • CE EN 55024 • CE EN 60950-1 • IEC 60950-1 • UL 60950-1 • C-Tick CISPR 22 • IC CISPR 22 • VCCI CISPR 22 • RoHS / WEEE compliant
Front Panel Components	
Power:	Press the Power button to power on or power off the controller. Hold for 2 seconds to power off. Momentary press to power back on.

NX-4200 Specifications (Cont.)	
Program Port	1 Type-B USB port that can connect to a USB port on a PC and access the NetLinx Studio program for controller configuration.
USB Port	1 Type-A USB port for connecting a mass storage device for loading .tkn files, reading or writing configuration files and log files, or updating the firmware on the unit.
Display Control Button	1 rocker-style tactile button for stepping through the supported status parameters displayed on the front panel LCD.
LCD Display	A 2 line by 20 character alphanumeric display for viewing status parameters.
Master LEDs:	• LINK/ACT (green): Blinks when the Ethernet cables are connected and terminated correctly. Also blinks when receiving Ethernet data packets. • STATUS (green): Blinks to indicate that the system is programmed and communicating properly. • OUTPUT (red): Blinks when the Controller transmits data, sets channels On and Off, sends data strings, etc. • INPUT (yellow): Blinks when the Controller receives data from button pushes, strings, commands, channel levels, etc.
ICSLAN LEDs	4 LEDs which blinks when the RJ-45 cables to ports 1-4 are connected and terminated correctly. The LEDs also blink when receiving LAN data packets.
Serial LEDs (red):	2 sets of eight LEDs, each of which light to indicate that the corresponding RS-232 ports (2-4, 6-8) and RS-232/422/485 ports (1, 5) are transmitting or receiving RS-232, 422, or 485 data.
Relay LEDs (red):	1 set of 8 LEDs, each of which light to indicate the corresponding relay channels (1-8) are active (closed). These LEDs reflect the state of the relay on port 21.
IR/Serial LEDs (red):	1 set of 8 LEDs, each of which light to indicate the IR/Serial channels 1-8 are transmitting control data on the corresponding IR/Serial ports (ports 11-18). The LED indicator for each IR port remains lit for the length of time that IR/Serial data is being generated.
Digital I/O LEDs (yellow):	1 set of 8 LEDs, each of which light when the corresponding rear I/O channels (1-8) are active. The LED for each I/O port reflects the state of that particular port.
Rear Panel Components	
RS-232 (Ports 2-4, 6-8)	6 5-pin RS-232 control ports using 5-pin 3.5 mm mini-Phoenix (male) connectors with XON/XOFF (transmit on/transmit off), CTS/RTS (clear to send/ready to send). Supports 150-115,200 baud.
RS-232/422/485 (Ports 1, 5):	2 10-pin RS-232/422/485 control ports using 10-pin 3.5 mm mini-Phoenix (male) connectors with XON/XOFF (transmit on/transmit off), CTS/RTS (clear to send/ ready to send). Supports 150-115,200 baud.
Relays (Port 21):	8-channel single-pole single throw relay ports Each relay is independently controlled. Supports up to 8 independent external relay devices Channel range = 1-8 Each relay can switch up to 24 V_{DC} or 28 V_{AC} @ 1 A Two 8-pin 3.5 mm mini-Phoenix (male) connectors provide connection to relays
Digital I/O (Port 22):	8-channel binary I/O port for contact closure with each input being capable of voltage sensing. Input format is software selectable with interactive power sensing for IR ports.
IR/Serial (Ports 11-18):	8 IR/Serial control ports support high-frequency carriers of up to 1.142 MHz with each output being capable of two electrical formats: IR or Serial. 8 IR/Serial data signals can be generated simultaneously. IR ports support data mode (at limited baud rates and wiring distances).
AxLink Port:	2 4-pin 3.5 mm mini-Phoenix (male) connector that provides data and power to AxLink external control devices. Green AxLink LED indicates the state of the AxLink port.
SDHC Slot:	1 SDHC card slot for future use.
Configuration DIP Switch:	The Configuration DIP Switch allows you to set boot-time operations (see the *Configuration DIP Switch* section on page 30 for more information.)

NX-4200 Specifications (Cont.)	
ICSLAN Ports:	4 RJ-45 connectors for ICSLAN interface with support for PoE.
USB Port:	1 Type-A USB port for connecting a mass storage device for loading .tkn files, reading or writing configuration files and log files, or updating the firmware on the unit.
ID Pushbutton:	1 black ID pushbutton used during boot to revert to factory configuration or factory firmware. Also used after boot to toggle IP mode between Static and DHCP.
LAN 10/100 Port:	1 RJ-45 connector provides TCP/IP communication. This is an Auto MDI/MDI-X enabled port, which allows you to use either straight-through or crossover Ethernet cables. The Ethernet Port LEDs show communication activity, connection status, speeds, and mode information: • SPD (speed) - Yellow LED lights On when the connection speed is 100 Mbps and turns Off when the speed is 10 Mbps. • L/A (link/activity) - Green LED lights On when the Ethernet cables are connected and terminated correctly, and blinks when receiving Ethernet data packets.
Power Connection:	2-pin 3.5 mm mini-Phoenix (male) connector with retention screws provides power to the NX-4200. The NX-4200 can be powered either with a connection to the main AC power ($110/220V_{AC}$) or from an external $12V_{DC}$ power supply.
General Specifications:	
Operating Environment:	• Operating Temperature: 32° F (0° C) to 104° F (40° C) • Storage Temperature: 14° F (-10° C) to 140° F (60° C) • Operating Humidity: 5% to 85% RH • Heat Dissipation (On): 28.7 BTU/hr
Included Accessories:	• 1 2-pin 3.5 mm mini-Phoenix (female) PWR connector • 1 4-pin 3.5 mm mini-Phoenix (female) AxLink connector • 2 6-pin 3.5 mm mini-Phoenix (female) I/O connectors • 2 8-pin 3.5 mm mini-Phoenix (female) Relay connectors • 2 10-pin 3.5mm mini-Phoenix (female) RS232/422/485 connectors • 6 5-pin 3.5mm mini-Phoenix (female) RS232 connectors • 2 CC-NIRC, IR Emitters (**FG10-000-11**) • 2 removable rack ears
Other AMX Equipment:	• PSN6.5 - 6.5 A Power Supply (**FG423-41**) • PSR4.4 - 4.4 A Power Supply (**FG423-46**) • CC-USB-NI - USB Programming Cable (**FG10-2105**) • CC-NIRC - IR Cables (**FG10-000-11**) • CBL-ETH-FL, Ethernet Cat5e Flat Cable (**FG1-2182-16**) • EXB-IRS4, ICSLan IR/S Interface, 4 IR/S and 4 Inputs (**FG2100-23**) • EXB-COM2, ICSLan Serial Interface, 2 Ports (**FG2100-22**) • EXB-REL8, ICSLan Relay Interface, 8 Channels (**FG2100-20**) • EXB-I/O8, ICSLan Input/Output Interface, 8 Channels (**FG2100-21**) • EXB-MP1, ICSLan Multi-Port, 1 COM, 1 IR/S, 2 I/O, 1 IR RX (**FG2100-26**)

Mounting the Controller

Use the rack-mounting brackets (supplied with the NX-2200/3200/4200) for equipment rack installations. Remove the mounting brackets and apply the rubber feet to the bottom of the controller for flat surface installations.

Installing the Controller into an Equipment Rack

The NX-2200/3200/4200 each ship with removable rack ears for installation into an equipment rack. The following instructions apply to the NX-2200/3200/4200.

Rack Mount Safety Instructions

Be sure to follow these important safety instructions when installing your central controller:

- If installed in a closed or multi-unit rack assembly, the operating ambient temperature of the rack environment may be greater than room ambient. Therefore, consideration should be given to installing the equipment in an environment compatible with the maximum ambient temperature 60°C (140°F).
- Installing the equipment in a rack should be such that the amount of air flow required for safe operation of the equipment is not compromised.
- Mounting the equipment in the rack should be such that a hazardous condition is not achieved due to uneven mechanical loading.
- Consideration should be given to the connection of the equipment to the supply circuit and the effect that overloading of the circuits might have on over current protection and supply wiring. Appropriate consideration of equipment nameplate ratings should be used when addressing this concern.
- Reliable earthing of rack-mounted equipment should be maintained. Particular attention should be given to supply connections other than direct connections to the branch circuit (e.g. use of power strips).

Note: *To avoid repeating the installation, test the incoming wiring by connecting the Controller's connectors to their terminal locations and applying power. Verify that the unit is receiving power and functioning properly. Disconnect the terminal end of the power cable from the connected 12 VDC-compliant power supply.*

1. Use the supplied #8-32 screws to secure the rack ears to the sides of the controller. You can attach the rack ears toward the front or rear panel for either a front-facing or rear-facing installation.
2. Slide the unit into the rack until the attachment holes, along both sides, align to their corresponding locations on the mounting brackets, as shown in FIG. 6.

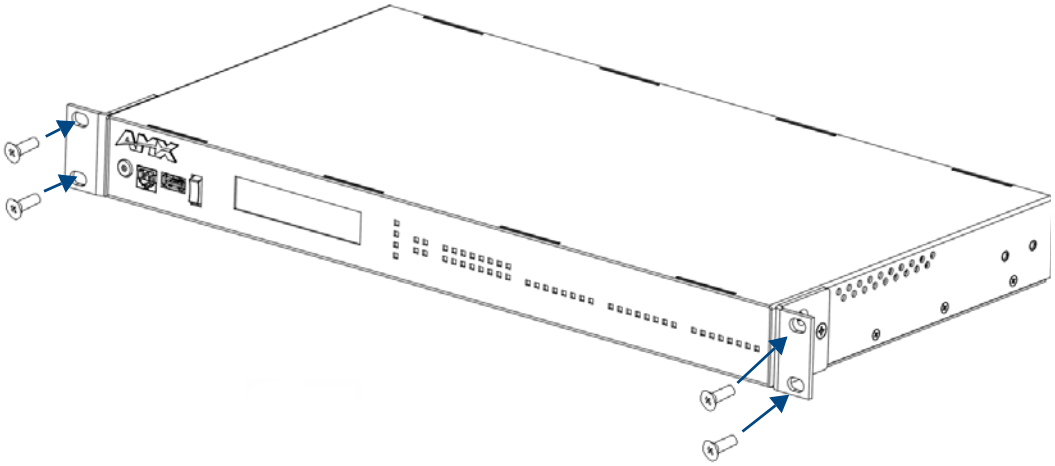


FIG. 6 Mounting Integrated Controller into an equipment rack

3. Thread the cables through the opening in the equipment rack. Allow for enough slack in the cables to accommodate for movement during the installation process.
4. Reconnect all cables to their appropriate source/terminal locations. Refer to the *Wiring and Connections* section on page 19 for more detailed wiring and connection information. Verify that the terminal end of the power cable is not connected to the power supply before plugging in the 2-pin power connector (or AC power connector on the NX-4200.)

5. Secure the controller to the rack by using the four #10-32 screws supplied in the kit.
6. Apply power to the unit to complete the installation.

Mounting the NX-1200

Mounting options for the NX-1200 are as follows:

- Rack mounting with an AVB-VSTYLE-RMK-1U, V Style Module Rack Mounting Tray (**FG1010-720**)
- Surface mounting with an AVB-VSTYLE-SURFACE-MNT, V Style Single Module Surface Mount (**FG1010-722**)

Consult the *Mounting Options for V Style Modules Quick Start Guide* included with the respective mounting kit for instructions on mounting the NX-1200. The NX-1200 also has rubber feet which you can apply to the bottom of the unit for table-top mounting.

Wiring and Connections

Overview

This chapter provides details, specifications, wiring diagrams, and other important information for all port and connectors available on the NX-series controllers.

FIG. 1 displays the NX-series controllers.

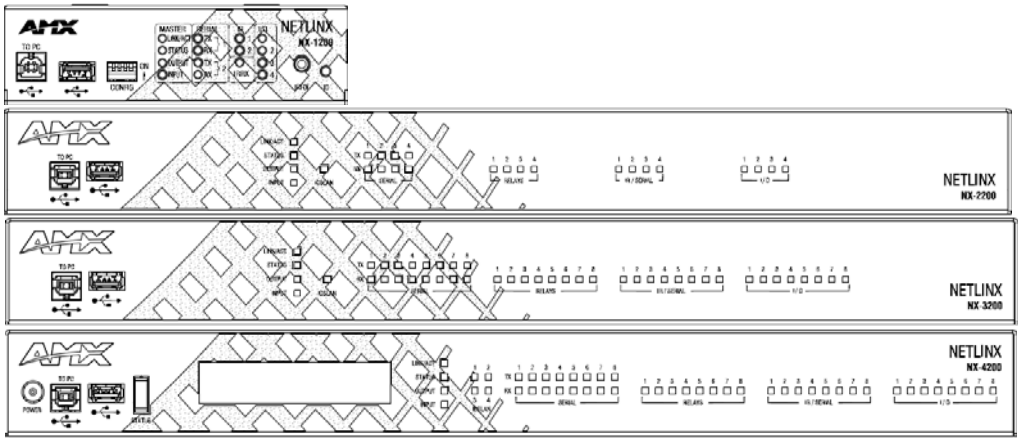


FIG. 1 NX-series controllers

Front Panel Components

The following sections list the front panel components on the NX-series controllers. Each component is featured on all NX-series controllers except where noted.

Power Button

The NX-4200 includes a momentary button on the front panel that you can use to turn on and turn off the unit. When you apply power to the unit, the power state is always on and the integrated LED is green. If you press the power button for more than two seconds while the unit is on, the unit turns off and the integrated LED changes to amber. Pressing the button momentarily while the unit is off turns it on and returns the integrated LED to green.

Note: *The power button does not switch off AC power routed to the internal power supply. If AC power is used on the unit, AC power will still be present on the power supply AC input connections even when the unit is turned off.*

If an internal power fault is detected, the LED integrated into the power button will flash yellow. This is an indication that the unit requires service.

FIG. 2 displays the Power button.

FIG. 2 Power button

Program Port

The front panel of all models features one Type-B USB port for connecting the controller to a PC via USB cable.

The Program port uses a standard Type-A-to-Type-B USB cable to connect to a PC. When connected, you can view your controller among the listed Masters connected via USB in NetLinx Studio. See the Initial Configuration chapter in the *NX-Series Controllers WebConsole and Programming Guide* for more information.

FIG. 3 Program port

USB Port

The front panel of all models features one Type-A USB port you can use to connect a mass storage device for loading .tkn files, reading or writing configuration files and log files, or updating the firmware on the unit.

Note: *This USB port only supports a FAT32 file system.*

This USB port (FIG. 4) uses standard USB cabling to connect to any mass storage or peripheral devices.

FIG. 4 USB port

Note: *USB hubs are not supported on this port.*

Status Button

The front panel of the NX-4200 features a rocker-style tactile button for stepping through the available status parameters displayed on the front panel LCD. You can press the button in the up or down directions to cycle through items on the LCD.

This button is only available on the NX-4200.

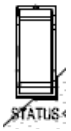


FIG. 5 Status button

Front Panel Display

The NX-4200 has a front panel display which you can use to view specific information and settings about the controller. You can use the Status button beside the display to cycle through the items on the display. All items on the display are view-only. The following table lists the items you can view on the front panel display:

Front Panel Display Items	
Item Name	**Description**
Hostname	The host name of the Master.
System Number	The system number of the Master.
Serial Number	The serial number of the Master.
LAN MAC Address	The MAC address assigned to the Master via the LAN.
LAN IPv4 Address	The IP address assigned to the Master via the LAN.
LAN IPv4 Address Type	The IP address type. This reads either Static or Dynamic.
LAN IPv4 Subnet Mask	The subnet mask assigned to the Master via the LAN.
LAN IPv6 Link Local Address	The IPv6 address assigned to the Master via the LAN. This address is not to be used for normal IP communication, including Master-to-Master.
LAN Default Gateway IPv4 Address	The gateway address assigned to the Master via the LAN.
LAN Default Gateway IPv6 Address	The gateway IPv6 address assigned to the Master via the LAN.
LAN DNS Server IPv4 Address	The DNS address assigned to the Master via the LAN.
LAN DNS Server IPv6 Address	The IPv6 DNS address assigned to the Master via the LAN.
ICSLAN MAC Address	The MAC address assigned to the Master via the ICSLAN.
ICSLAN IPv4 Address	The IP address assigned to the Master via the ICSLAN.
ICSLAN IPv4 Subnet Mask	The subnet mask assigned to the Master via the ICSLAN.
ICSLAN IPv6 Link Local Address	The IPv6 address assigned to the Master via the ICSLAN.
Master Firmware Version	The firmware version the Master is using.
Integrated Controller Firmware Version	The firmware version the integrated controller is using.
PoE General Status	General PoE status codes. See the *PoE General Status Format* section on page 21 for a list of status definitions.
PoE Port Status	PoE port status codes. See the *PoE Port Status* section on page 21 for a list of condition codes.

PoE General Status Format

The PoE General Status front panel display item contains the following status definitions:

- **PoE Not Available** - The system is not being powered from an AC source.
- **OK: xx.xW** - No general faults are present, where xx.x is the total power in watts currently being provided on the PoE ports.
- **Max Power Exceeded** - The total power drawn on the ports is greater than the PoE power capacity.
- **Voltage Fault** - The PoE voltage is out of range.

PoE Port Status

If the system is not being powered from an AC source, the status will read "**PoE Not Available**". Otherwise, the status consists of four subfields separated by blanks, each of the format *x:cc*, where *x* is the port number (1, 2, 3, or 4) and *cc* is the condition code. If there is not a fault on the port, the possible condition codes are as follows:

- **N** - No device is attached on the port or the device is not a PoE Powered Device.
- **L** - A PoE Powered Device of Class 1 or 2 is attached on the port.
- **M** - A PoE Powered Device of Class 0 or 3 is attached on the port.
- **H** - A PoE Powered Device of Class 4 is attached on the port.
- **D** - The port has been disabled.
- **ED** - A PoE Powered Device is attached on the port, but the load has been disconnected due to not drawing at least minimum current.
- **EO** - A PoE Powered Device is attached on the port, but has been shut off due to drawing more than maximum current or due to overheating on the controller's port.

Example:

PoE Port Status

1:N 2:M 3:ED 4:D

LEDs

This section details the various LEDs on the front panel of the NX-series controllers.

General Status LEDs

The General Status LEDs include the Link/Activity, Status, Output, and Input LEDs. These LEDs appear on all models of NX-series controllers.

FIG. 6 displays the General Status LEDs for each NX-series controller.

NX-2200/3200/4200 NX-1200

FIG. 6 General Status LEDs

- Link/Act - Lights green when the link is up and toggles off when a data packet is sent or received.
- Status - Lights green and blinks once per second if the master is functioning normally and has established communication with a DHCP server.
- Input - Lights yellow when the controller receives data
- Output - Lights red when the controller transmits data

The following table lists the following special LED patterns for the Status, Input, and Output LEDs:

LED Patterns				
Mode	**Description**	**Status**	**Output**	**Input**
OS Start	Starting the Operating System	ON	ON	ON
Boot	On-board Master is booting	ON	OFF	ON
Contacting DHCP server	On-board Master is contacting a DHCP server for IP configuration information	ON	OFF	Fast Blink
Using link-local address	On-board Master could not find a DHCP server and is using a link-local address	Slow Blink	OFF	OFF
Downloading Boot firmware	Downloading Boot firmware to the Master's on-board Flash memory	Fast Blink*	Fast Blink*	Fast Blink*
Program running	Normal operation with a running program	Slow Blink	Normal	Normal
No program running	There is no NetLinx program loaded or the program is disabled	ON	Normal	Normal

* - The fast blink is nearly instantaneous upon downloading the boot firmware to Flash memory and is, in most cases, undetectable to the user's eye.

ICSLAN LEDs

The ICSLAN LEDs light green when there is an active link on the corresponding ICSLAN port. The light toggles off when a data packet is sent or received.

There are 4 ICSLAN LEDs on the NX-4200. The NX-2200 and NX-3200 each have one ICSLAN LED (see FIG. 7).

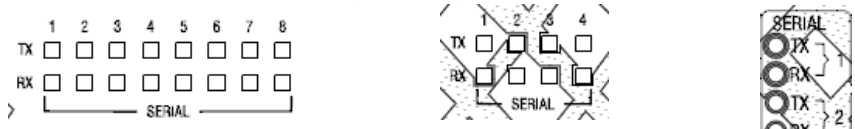
NX-4200 NX-2200/3200

FIG. 7 ICSLAN LEDs

SERIAL LEDs

The SERIAL LEDs are two sets of LEDs which light to indicate that the RS-232 ports are transmitting or receiving RS-232, 422, or 485 data (red = TX, yellow = RX). The light toggles on when a data packet is sent or received.

There are two sets of eight SERIAL LEDs on the NX-3200 and NX-4200. The NX-2200 has two sets of four LEDs. The NX-1200 has two sets of two LEDs (see FIG. 8).



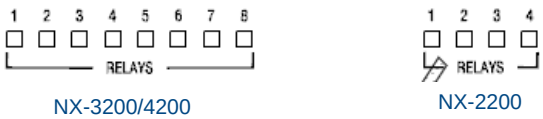
NX-3200/4200 NX-2200 NX-1200

FIG. 8 SERIAL LEDs

RELAYS LEDs

The RELAYS LEDs light red to indicate that the corresponding relay port is active. The light toggles off when the relay port is not engaged.

There are eight RELAY LEDs on the NX-3200 and NX-4200. The NX-2200 has four RELAY LEDs (see FIG. 9).



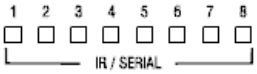
NX-3200/4200 NX-2200

FIG. 9 RELAYS LEDs

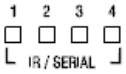
IR/SERIAL LEDs

The IR/SERIAL LEDs light red to indicate that the corresponding IR/Serial port is transmitting data.

There are eight IR/SERIAL LEDs on the NX-3200 and NX-4200. The NX-2200 has four IR/SERIAL LEDs. The NX-1200 has two IR LEDs (see FIG. 9).



NX-3200/4200



NX-2200

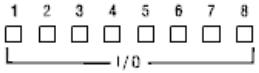
NX-1200

FIG. 10 IR/SERIAL LEDs

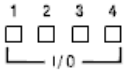
I/O LEDs

The I/O LEDs light yellow to indicate that the corresponding I/O port is active.

There are eight I/O LEDs on the NX-3200 and NX-4200. The NX-1200 and NX-2200 has four I/O LEDs (see FIG. 9).



NX-3200/4200



NX-2200

NX-1200

FIG. 11 I/O LEDs

IRRX LED

The IRRX LED lights red to indicate that the corresponding IRRX port is receiving data.

This LED is only available on the NX-1200 (see FIG. 9).

NX-1200

FIG. 12 IRRX LED

IRRX Port

The IRRX port is a 1/8" mini-phono receiver port capable of interfacing with an IR03 External IR Receiver Module. This port is only available on the NX-1200.

FIG. 13 displays the IRRX port.

FIG. 13 IRRX port

Rear Panel Components

The following sections list the rear panel components on the NX-series controllers.

FIG. 14 displays the rear panels of the NX-series controllers.

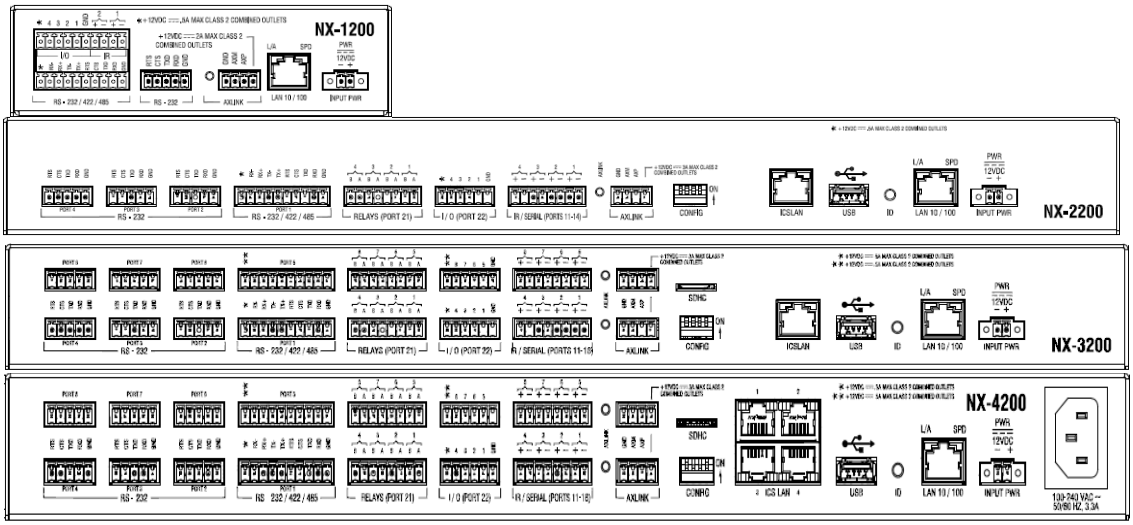


FIG. 14 NX-series controllers (rear panels)

Serial Ports

The NX-series controllers each feature device control serial ports that support either RS-232 or RS-232, RS-422, and RS-485 communication protocols. Each port supports the following specifications:

- XON/XOFF (transmit on/transmit off)
- CTS/RTS (clear to send/ready to send)
- 300-115,200 baud rate

RS-232 Ports

The RS-232 ports (ports 2-4 and 6-8 on the NX-3200/4200; ports 2-4 on the NX-2200; port 2 on the NX-1200) are 5-pin 3.5 mm mini-Phoenix (male) connectors used for connecting A/V sources and displays. These ports support most standard RS-232 communication protocols for data transmission.

FIG. 15 displays the RS-232 ports for the NX-series controllers.

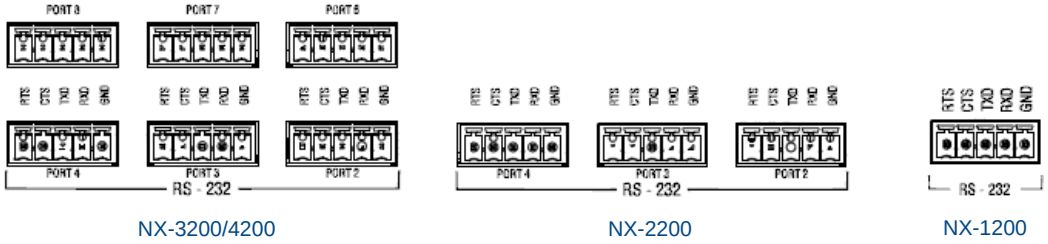


FIG. 15 RS-232 ports

The following table lists the pinouts for the RS-232 ports.

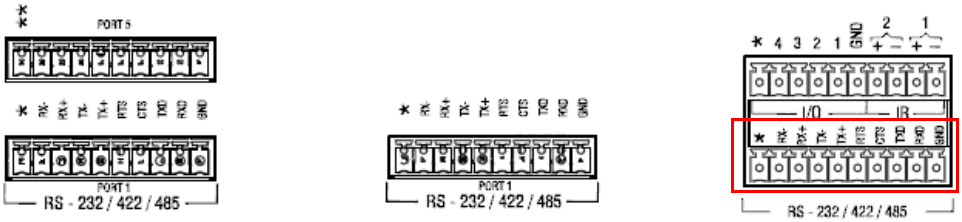
RS-232 Port Pinouts	
Pin 1	GND
Pin 2	RXD
Pin 3	TXD
Pin 4	CTS
Pin 5	RTS

In the above table, pin 1 is located on the right side of the port, and the pinouts count up to the left.

RS-232/422/485 Ports

The RS-232/422/485 ports (ports 1 and 5 on the NX-3200/4200; port 1 on the NX-1200/2200) are 10-pin 3.5 mm mini-Phoenix (male) connectors used for connecting A/V sources and displays. By default, these ports are RS-422- and RS-485-disabled ports. These ports can be used as RS-232 ports by disabling RS-422 and RS-485 on the ports. Only with RS-422/485 disabled will the ports operate as RS-232. See the *SET BAUD* command and the *TSET BAUD* command in the NetLinx Programming chapter of the NX-Series Controllers WebConsole and Programming Guide for more information on disabling RS-422 and RS-485 on these ports. These ports support most standard RS-232, RS-422, and RS-485 communication protocols for data transmission.

FIG. 16 displays the RS-232/422/485 ports for each NX-series controller.



NX-3200/4200 NX-2200 NX-1200

FIG. 16 RS-232/422/485 ports

The following table lists the pinouts for the RS-232/422/485 ports.

RS-232/422/485 Port Pinouts	
Pin 1	GND (used in RS-232 and RS-422)
Pin 2	RXD (used in RS-232)
Pin 3	TXD (used in RS-232)
Pin 4	CTS (used in RS-232)
Pin 5	RTS (used in RS-232)
Pin 6	TX+ (used in RS-422 and RS-485)
Pin 7	TX- (used in RS-422 and RS-485)
Pin 8	RX+ (used in RS-422 and RS-485)
Pin 9	RX- (used in RS-422 and RS-485)
Pin 10	+12V

In the above table, pin 1 is located on the right side of the port, and the pinouts count up to the left.

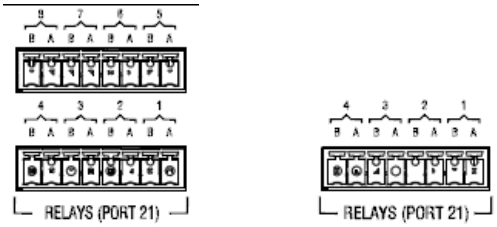
Relay Ports

The relay ports (port 21 on the NX-2200/3200/4200) are 8-pin 3.5 mm mini-Phoenix (male) connectors used for connecting external relay devices. The NX-3200 and NX-4200 each features 2 sets of 8-pin relay connectors. The NX-2200 features one set of connectors. You can connect up to 8 independent external relay devices on both the NX-3200 and NX-4200 units, and 4 on the NX-2200. When a relay is "OFF", terminals A and B are open-circuit. When a relay is "ON", terminals A and B are shorted together.

Relay Connections

Use connectors A for common and B for output (FIG. 17). Each relay is isolated and normally open.

A metal connector strip is also provided to common multiple relays.



NX-3200/4200 NX-2200

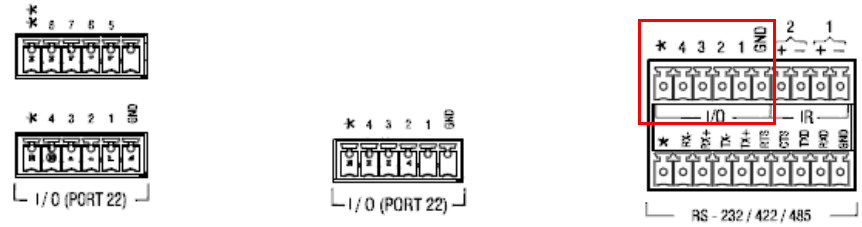
FIG. 17 RELAY connector (male)

- 8-channel single-pole single-throw relay ports
- Each relay is independently controlled
- Supports up to 8 independent external relay devices (4 on the NX-2200)
- Channel range = 1-8
- Each relay can switch up to 24 VDC or 28 VAC peak @ 1 A
- Two 8-pin 3.5mm mini-Phoenix (male) connector provides relay termination (One connector on the NX-2200)

I/O Ports

The I/O ports (port 22 on all NX-series controllers) are 6-pin 3.5 mm mini-Phoenix (male) connectors used for connecting logic-level outputs. The NX-3200 and NX-4200 each features 2 sets of 6-pin I/O connectors. The I/O port responds to either switch closures, voltage level (high/low) changes, or it can be used for logic-level outputs. Each port is capable of being used as an input or an output.

FIG. 18 displays the I/O ports for each NX-series controller.



NX-3200/4200 NX-2200 NX-1200

FIG. 18 I/O ports

- A contact closure between the GND and an I/O port is detected as a Push.
- When used for voltage inputs, the I/O port detects a low signal (0 - 1.5 VDC) as a Push, and a high signal (3.5 - 5 VDC) as a Release. (This I/O port uses 5V logic but can handle up to 12V without harm).
- When used for outputs, the I/O port acts as a switch to GND and is rated for 200mA @ 12 VDC.
- The NX-1200 and NX-2200 can use up to 4 I/O ports
- The NX-3200 and NX-4200 can use up to 8 I/O ports
- The PWR pin provides +12 VDC @ 200 mA and is designed as a power output for the PCS Power Current Sensors, VSS2 Video Sync Sensors (or equivalent).
- The GND connector is a common ground and is shared by all I/O ports. A common ground is shared with I/O ports 1-8 (NX-3200/NX-4200) or with I/O ports 1-4 (NX-1200/NX-2200).
- The input impedance on the I/O port is 22k.

I/O Port Wiring Specifications		
NX-3200/4200		
Pin	**Signal**	**Function**
1	GND	Signal GND
2	I/O 1	Input/Output
3	I/O 2	Input/Output
4	I/O 3	Input/Output
5	I/O 4	Input/Output
6	12 VDC	PWR
7	GND	Signal GND
8	I/O 5	Input/Output
9	I/O 6	Input/Output
10	I/O 7	Input/Output
11	I/O 8	Input/Output
12	12 VDC	PWR

NX-1200/2200		
Pin	**Signal**	**Function**
1	GND	Signal GND
2	I/O 1	Input/Output
3	I/O 2	Input/Output
4	I/O 3	Input/Output
5	I/O 4	Input/Output
6	12 VDC	PWR

In the above table, pin 1 is located on the right side of the port, and the pinouts count up to the left.

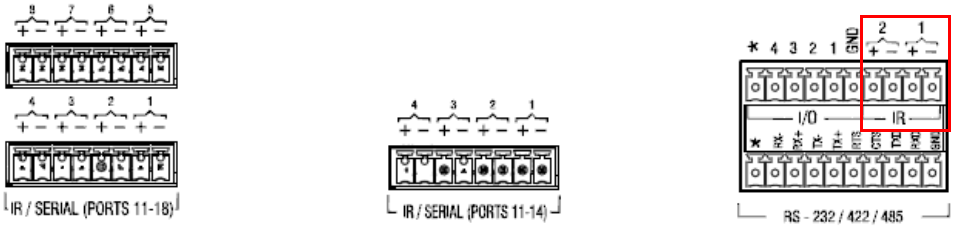
IR/SERIAL Port: Connections and Wiring

The IR/SERIAL ports provide IR transmit/one-way serial connections that support high-frequency carriers up to 1.142 MHz. You can simultaneously generate up to eight IR/Serial data signals on the NX-4200 and NX-3200, up to four on the NX-2200, and up to two on the NX-1200.

These ports accept an IR Emitter (CC-NIRC) that mounts onto the device's IR window, or a mini-plug (CC-NSER) that connects to the device's control jack. You can also connect a data 0 - 5 VDC device to these ports.

NX-3200 and 4200 units each ship with two CC-NIRC IR Emitters (FG10-000-11). NX-1200 and 2200 units ship with one emitter each.

FIG. 19 displays the IR/SERIAL ports for each NX-series controller.



NX-3200/4200 NX-2200 NX-1200

FIG. 19 IR/SERIAL connector (male)

Note: *The maximum baud rate for ports using DATA mode is 19200. Also, DATA mode works best when using a short cable length (< 10 feet).*

Note: *For each data signal, the negative (-) terminal is for Signal GND, and the positive (+) terminal is for IR/Serial data.*

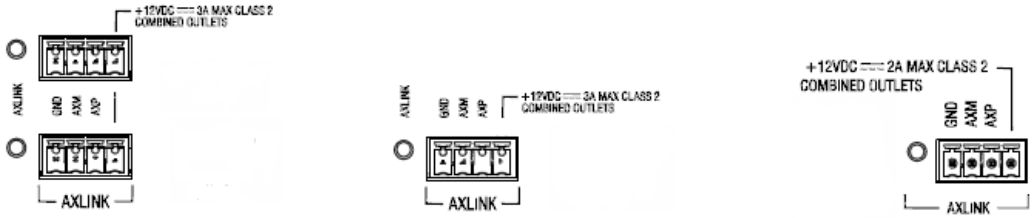
The IR/Serial connector wiring specifications are listed in the following table.

IR/SERIAL Connector Wiring Specifications (per Port)		
NX-3200/ 4200 Port #	**NX-2200 Port #**	**NX-1200 Port #**
11	11	11
12	12	12
13	13	N/A
14	14	N/A
15	N/A	N/A
16	N/A	N/A
17	N/A	N/A
18	N/A	N/A

AxLink Port and LED (4-pin captive-wire)

The AxLink port allows the central controller to support AMX AxLink devices.

FIG. 20 displays the AXLINK ports for each NX-series controller.



NX-3200/4200 NX-2200 NX-1200

FIG. 20 AxLink Ports and LEDs

The (green) AxLink LED indicates AxLink data activity:

- **Off** - No power, or the controller is not functioning properly.
- **1 blink per second** - Normal operation.
- **3 blinks per second** - AxLink bus error. Check all AxLink bus connections.

The AxLink port can be used to supply power to downstream AxLink-compatible devices as long as the maximum current draw is less than 1.5 Amps on the NX-1200 and NX-2200, and 3 Amps on the NX-3200 and NX-4200. To isolate the central controller from high in-rush current, AxLink devices, or potential power faults on the AxLink bus, it is strongly recommended that you power external AxLink devices from an independent power supply.

Note: *The AxLink port provides only limited power to connected AxLink devices. It is recommended to use an alternate power source when connecting AxLink devices to the central controller.*

Important: *The NX-Series controllers CANNOT be powered via the AxLink port. The +12V pin on the AxLink connectors are designed only for voltage output. Do NOT connect +12V from a power supply or the NXA-PDU to the +12V pin on the AxLink connectors, or you may permanently damage the NX controller and/or the power supply.*

The NX-3200 and NX-4200 both have two AxLink connections. These are two connection points for the same AxLink bus. All AxLink devices connected to the controller must have unique AxLink device numbers even if they are attached to different AxLink connection points on the controller.

While it is one AxLink bus, the power on these two AxLink connections is controlled independently.

Refer to the following table for the wiring length information used with the central controller:

Wiring Guidelines	
Wire size	**Maximum wiring length**
18 AWG	154.83 feet (47.19 meters)
20 AWG	98.30 feet (29.96 meters)
22 AWG	63.40 feet (19.32 meters)
24 AWG	38.68 feet (11.79 meters)

FIG. 21 provides wiring requirements for the AxLink connector:

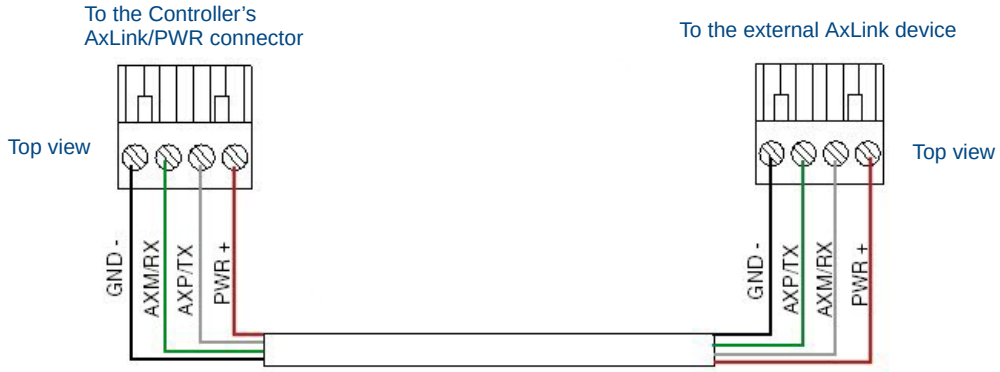


FIG. 21 Mini-Phoenix connector wiring diagram (direct data and power)

To use the 4-pin 3.5 mm mini-Phoenix (male) captive-wire connector for data communication and power transfer, the incoming PWR and GND cable from the 12 VDC-compliant power supply must be connected to the AxLink cable connector going to the central controller. FIG. 22 shows the wiring diagram:

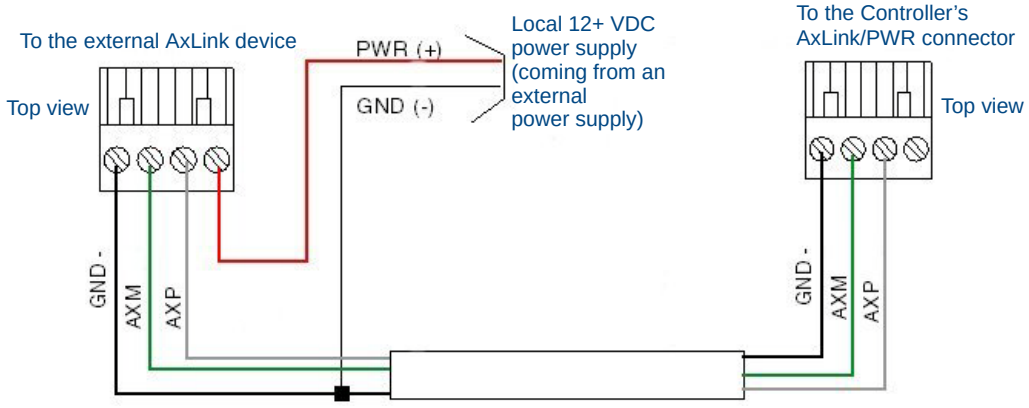


FIG. 22 4-pin mini-Phoenix connector wiring diagram (using external power source)

WARNING! *When you connect an external power supply, do not connect the wire from the PWR terminal (coming from the external device) to the PWR terminal on the Phoenix connector attached to the Controller unit. Make sure to connect only the AXM, AXP, and GND wires to the Controller's Phoenix connector when using an external power supply.*

Make sure to connect only the GND wire on the AxLink/PWR connector when using a separate 12 VDC power supply. Do not connect the PWR wire to the AxLink connector's PWR (+) opening.

SDHC Card Slot

The NX-3200 and NX-4200 each feature an externally accessible SDHC card slot.

Note: *The card slot is reserved for future use. Do not install a card in the card slot at this time.*

FIG. 23 displays the SDHC card slot.

FIG. 23 SDHC Card Slot

Configuration DIP Switch

The NX-series controllers each have a configuration DIP switch which allows for certain operations to occur during boot-time. The DIP switch positions are assigned as follows:

- Switch for Program Run Disable
- Switch for Boot from External SD Card (only applicable to the NX-3200 and NX-4200.)

Note: *The Configuration DIP Switch is located on the front panel of the NX-1200 and not the rear panel.*

FIG. 24 displays the Configuration DIP Switch for the NX-series controllers.

FIG. 24 Configuration DIP Switch

Program Run Disable (PRD) Mode

You can use the Configuration DIP switch to set the on-board Master to Program Run Disable (PRD) mode. PRD mode prevents the NetLinx program stored in the on-board Master from running when you power up the Integrated Controller. You should only use PRD mode when you suspect the resident NetLinx program is causing inadvertent communication and/or control problems.

If necessary, place the on-board Master in PRD mode and use the NetLinx Studio program to resolve the communication and/or control problems with the resident NetLinx program. Then download the new NetLinx program and try again.

FIG. 25 displays the default DIP switch settings and the settings for PRD mode. To switch to PRD mode, move the position 1 DIP switch to ON.

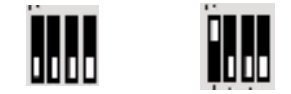


FIG. 25 DIP Switch settings - PRD mode

Note: *Consider equating PRD Mode to a PC's SAFE Mode setting. With PRD mode, you can continue to power a unit, update the firmware, and download a new program while circumventing any problems with a currently downloaded program. You must power cycle the unit after activating/deactivating PRD mode on Program Port DIP switch #1.*

ICSLAN Ports

The NX-2200/3200/4200 controllers have two types of Ethernet ports: LAN and ICSLAN. The LAN port is used to connect the master to an external network, and the ICSLAN ports are used to connect to other AMX equipment or third-party A/V equipment. The ICSLAN ports on all models provide Ethernet Communication to connected AMX Ethernet Equipment in a way that is isolated from the primary LAN connection.

The ICSLAN port is a 10/100 Port RJ-45 connector and Auto MDI/MDI-X enabled. The NX-4200 features four ICSLAN ports, while the NX-2200/3200 feature one each. The ports on the NX-4200 feature Power-over-Ethernet (PoE). The ports support IPv4 and IPv6 networks, as well as HTTP, HTTPS, Telnet, and FTP.

FIG. 26 ICSLAN ports

When powered by an AC source, the NX-4200 can supply power via PoE to each port on the 4-port switch. The NX-4200 supports hi-powered PoE (802.3at STANDARD), but the total power draw of all four ports cannot exceed 72W.

The ICSLAN port gets its IP addresses in one or more of the following ways:

- IPv4 - Static assignment of the subnetwork address by the user
- IPv6 - Link local address

Using the ICSLAN Network

The default IP address for the ICSLAN network is 198.18.0.1 with a subnet mask of 255.255.0.0.

It is important that the ICSLAN and LAN subnets do not overlap. If the LAN port is configured such that its address space overlaps with the ICSLAN network, the ICSLAN network will be DISABLED.

DHCP Server

The ICSLAN port has a built-in DHCP server. This DHCP server is enabled by default and will serve IP addresses to any connected devices set to DHCP mode.

The DHCP server can be disabled from telnet with the command:

```
SET ICSLAN
```

The DHCP address range is fixed. The server will provide addresses in the range x.x.0.2 through x.x.63.255.

Devices using static IP addresses on the ICSLAN network should be set within the reserved static IP address range of x.x.64.1 to x.x.255.255.

Opening LAN and ICSLAN Sockets from Code

When opening sockets from NetLinx or Java code there is no mechanism to indicate which network to use. The controller will open the socket on whichever network has an IP subnet that matches the address provided in the command to open the socket. There is no indication which network was used, only whether the socket was created successfully.

USB Port

The front panel of all NX-series controllers features one Type-A USB port you can use to connect a mass storage device for loading .jar files and IR data files (.irl), reading or writing configuration files and log files, or updating the firmware on the unit. The rear panels of the NX-2200/3200/4200 also feature an additional USB port.

Note: *This USB port only supports a FAT32 file system.*

This USB port (FIG. 27) uses standard USB cabling to connect to any mass storage or peripheral devices.

FIG. 27 USB port

Note: *USB hubs are not supported on this port.*

ID Pushbutton

All NX-series controllers feature an ID pushbutton which you can use to toggle between static and dynamic IP addressing. You can also use the pushbutton to reset the default settings on the controller or restore the controller to its factory firmware image.

FIG. 28 displays the ID pushbutton for the NX-series controllers.

FIG. 28 ID pushbutton

Note: *The ID pushbutton is located on the front panel of the NX-1200 and not on the rear panel.*

Switching to Static or Dynamic IP Addressing.

To toggle between static or dynamic IP addressing, the controller cannot be currently booting or it must be in ID Mode. If these conditions are met, holding the ID pushbutton for 10 seconds changes the current IP addressing mode.

Restoring the Controller Settings to the Factory Defaults

To restore the controller settings to the factory defaults, the controller must be currently booting and you must press the ID pushbutton for 10 seconds. The controller is booting when the System and Input LEDs are both ON and the Output LED is OFF. This includes resetting the static IP address to its default and deleting the NetLinx program.

WARNING! *Pressing the ID pushbutton for 20 seconds restores the factory firmware image on the controller. Do not press the pushbutton significantly longer than the necessary 10 seconds if you only want to restore the default settings on the controller.*

Restoring the Controller's Factory Firmware Image

To restore the controller's factory firmware image, the controller must currently be booting and you must press the ID pushbutton for 20 seconds. This also deletes all code and IRL files.

LAN 10/100 Port

All NX-series controllers feature a LAN 10/100 port to provide 10/100 Mbps communication via Category cable. This is an Auto MDI/MDI-X enabled port, which allows you to use either straight-through or crossover Ethernet cables. The port support IPv4 and IPv6 networks, as well as HTTP, HTTPS, Telnet, and FTP.

The LAN port automatically negotiates the connection speed (10 Mbps or 100 Mbps), and whether to use half duplex or full duplex mode.

FIG. 29 displays the LAN port for the NX-series controllers.

FIG. 29 LAN 10/100 port

FIG. 30 provides the pinouts and signals for the LAN connector and cable.

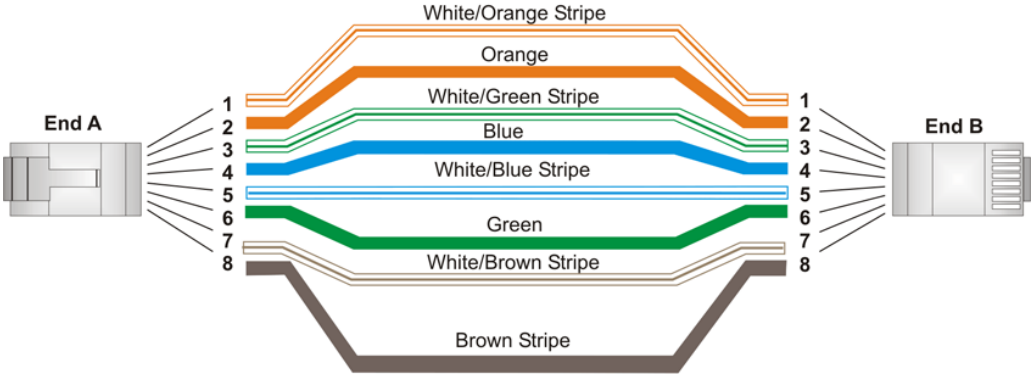


FIG. 30 RJ-45 wiring diagram

FIG. 31 describes the blink activity for the LAN connector and cable.

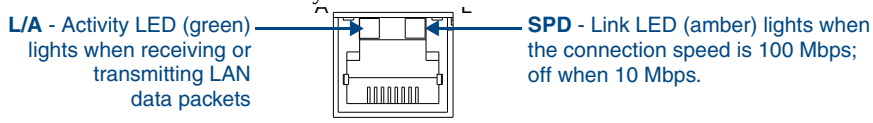

L/A - Activity LED (green) lights when receiving or transmitting LAN data packets
SPD - Link LED (amber) lights when the connection speed is 100 Mbps; off when 10 Mbps.

FIG. 31 LAN connector / LEDs

The LAN port gets its IP address(es) in one or more of the following ways:

IPv4

- Static assignment by the user
- Dynamic assignment by an IPv4 DHCP server
- Link local as a fall back when configured for DHCP but unable to successfully obtain address

IPv6

- Link local address
- Prefix(es) assigned by a router

INPUT PWR Connector

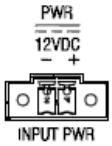
All NX-series controllers feature a 2-pin 3.5 mm Phoenix connector with screw retention for providing DC power to the controller. The suggested power supply for the NX-series controllers is a 13.5 VDC 6.6 A output, suitable for 50° C.

An AC power connector is also available for the NX-4200. A 100-240VAC, 60/63Hz, 3.3A power source is required to supply AC power to the controller.

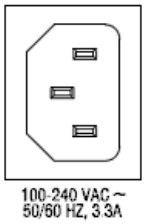
Note: *When the NX-4200 is powered only from an external 12V power supply, the ICSLAN ports will still function but they will NOT provide PoE power to connected devices.*

The NX-4200 can be connected to both mains AC and 12V DC power simultaneously. This provides redundant power for all but PoE power on the ICSLAN ports. If the AC input power is lost or if the internal power supply fails, the NX-4200 will immediately switch to the 12V DC power input without interruption. When AC power is restored, the NX-4200 will switch back to the internal power supply, again without interruption.

FIG. 32 displays the power connector options for the NX-series controllers.



DC Power connector
(all models)



AC Power connector
(NX-4200 only)

FIG. 32 Power connectors

Preparing Captive Wires

You will need a wire stripper and flat-blade screwdriver to prepare and connect the captive wires.

Note: *Never pre-tin wires for compression-type connections.*

1. Strip 0.25 inch (6.35mm) of insulation off all wires.
2. Insert each wire into the appropriate opening on the connector (according to the wiring diagrams and connector types described in this section).
3. Tighten the screws to secure the wire in the connector. Do not tighten the screws excessively, as doing so may strip the threads and damage the connector.

Wiring a Power Connection

To use the 2-pin 3.5mm mini-Phoenix connector with a 12 VDC-compliant power supply, the incoming PWR (+) and GND (-) cables from the external source must be connected to their corresponding locations on the connector (FIG. 33).

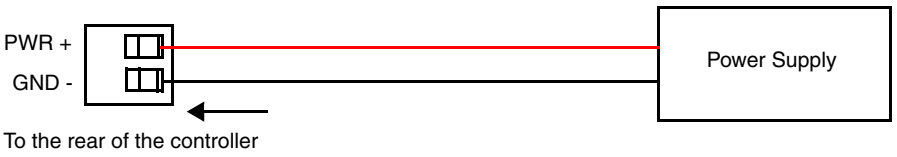


FIG. 33 2-pin mini-Phoenix connector wiring diagram (direct power)

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